

## DAY OF THE WEEK EFFECT: THE CASE OF MEXICO, INDONESIA AND TURKEY

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### Abstract

This study aims to determine whether there is the phenomenon of calendar anomalies, especially the day of the week effect in the stock market of Mexico, Indonesia and Turkey. All three are known as MINT (Mexico, Indonesia, Nigeria and Turkey) are predicted to be the engine of world economic growth over the next ten years. The sample used in this study is the daily data of stock index movements in each country, during the period from 2009 to early February 2014. The results showed the absence of the phenomenon of day of the week effect in the equity markets of Mexico and Turkey. Different results occur in the Indonesian capital market which found there were differences in daily returns, the average return was lowest on Mondays and highest return on Wednesday.

Keywords: calendar anomalies phenomenon, day of the week effect, daily return

### Abstrak

Penelitian ini bertujuan untuk mengetahui ada tidaknya fenomena kalender anomaly khususnya day of the week effect di pasar modal Mexico, Indonesia dan Turki. Ketiga Negara ini dikenal dengan sebutan MINT (Mexico, Indonesia, Nigeria dan Turki) yang diprediksi menjadi motor pertumbuhan ekonomi dunia selama sepuluh tahun ke depan. Sampel yang digunakan dalam penelitian ini adalah data harian pergerakan indeks saham di masing-masing Negara, selama periode tahun 2009 hingga awal Februari 2014. Hasil penelitian menunjukkan tidak terdapatnya fenomena day of the week effect di pasar modal Mexico dan Turki. Hasil berbeda terjadi di pasar modal Indonesia yang menemukan terdapat perbedaan return harian, dengan rata-rata return terendah terjadi pada hari Senin dan return tertinggi terjadi di hari Rabu.

Kata Kunci: fenomena kalender anomaly, day of the week effect, daily return

### A. Introduction

After popularizing the term BRICs, Goldman Sachs in 2013, introduced the term MINT. MINT is an abbreviation of the few countries that are expected to be large in a period of 20 years to come. MINT is a country composed of Mexico, Indonesia, Nigeria and Turkey which was first introduced by an asset management Fidelity in Boston, which was later popularized by Jim O'Neill of Goldman Sachs. Jim O'Neil himself has popularized the term BRICs, which

stands for Brazil, Russia, India and China. But in 2013, O'Neil popularizes MINT As a favorite investment destination in the next two decades. O'Neil has reason to choose the country joined in MINT because these countries have a favorable demographic condition for 20 years. With a large population and a majority in the productive age will boost the economy of these countries become larger.

Based on these ideas, the study aims to analyze the pattern of weekly trading exchanges that occur in MINT member states. This study focuses on trading patterns in all four exchanges on the grounds that the economic indicators of a country can be classified in three groups of indicators are leading, coincident and lagging, where the stock market is one of the factors leading indicator of a State.

Research on the calendar anomaly has attracted much attention of researchers, either by using the approach of month of the year or days of the week. Research on the calendar this anomaly based on the Efficient Market Hypothesis (EMH) is expressed Fama in 1970. Fama efficient market split into three forms, namely weak form, semi-strong and strong form. Many studies anomaly particular calendar day of the week's pattern, this challenged the theory of EMH. Lari et al (2013) suggests there are three important issues related to the importance of the study of this anomaly pattern: first, this anomaly pattern will impact the trading strategies of investors. Secondly, the study of this anomaly pattern provides additional information for the rational investor to realize the variation in stock return volatility associated with the effects of day of the week. Rational investors will be able to determine whether high or low return was strongly associated with the volatility in the day. If the investor can determine the pattern of volatility, investors can easily make decisions based on projected returns and risks. Third, the study of this anomaly patterns can reveal evidence of EMH.

Kato (1990) conducted a study weekly trading pattern in Japanese stocks and the results showed that the highest return over the period 1974 to 1987 is located on a Wednesday, and the lowest return on the Tuesday. Tuesday is the day with the lowest return, this is due to an association with the lowest return is happening in American Stock Exchange on Monday. Meanwhile, Poshakwale (1996) using data from India's market for the

period 1987 to 1994, found the presence of a positive return except for Mondays and Wednesdays. This study also found that the greatest risk is measured by using the standard deviations are on Monday and Friday, which is almost the same happens in many countries. Mondays and Fridays tend to have the highest risk because on Friday, investors have uncertainties associated with the holiday weekend, where on Saturday-Sunday there may be relevant information and have an impact on the performance of the shares held by investors. This will have an impact on Monday, with investors also perform adjustments to the portfolio after two days off the week-end, thus triggering a larger standard deviation than the other days.

Another study conducted by Faza (2000) in Pakistan exchange period 1989-1993. In this study found no significant difference between the results of the day in exchange Pakistan. Meanwhile, Ndu et al (2006) examined in the Asia-Pacific stock markets (Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Pakistan Philippines, South Korea, Sri Lanka, Thailand and Taiwan) 1998-2003 found that most of the day of the week is not proven the significant region. Another study conducted in Southeast Asia by Anwar and Mulyadi (2009) is in the state of Indonesia, Singapore and Malaysia with results that indicate the presence of abnormal return on Friday in exchange Indonesia and Malaysia, while in Singapore took place on Monday and Friday.

The results of these various studies encourage research in countries that are members of the MINT to determine whether there is anomaly day on exchanges in all 4 countries. The results of the research will provide benefits to investors who will come and invest in the stock market MINT countries, which have favorable conditions in the demographic. This study only used data Mexico, Indonesia and Turkey, since the data for Nigeria is not obtained.

## **B. Literature Review**

This study uses the theory of Efficient Market Hypothesis developed by Fama (1970). In an efficient market, the market value of an asset reflects the information available (Megginson, 1997). The implications of the efficient market theory is no single investor can

predict the price to obtain abnormal returns, because the efficient market price of the stock will reflect all available information (Bodie et al., 2006).

There have been many studies conducted to test the truth of this efficient market theory, but the results showed that there were irregularities in the efficient market which is often referred to as a market anomaly. According Tandelilin and Agifari (1999), a market anomaly is an event that offers investors the opportunity to earn abnormal returns. Meanwhile, Alteza (2007) states that there is an event that causes the investor can earn abnormal returns. Of the various types of market anomalies, Schwert (2002) stated that the calendar anomalies occurred in many countries. Calendar anomalies or seasonality is one type of anomaly associated with a particular time series. Seasonality shape which will be the basis of this research is the phenomenon of day of the week effect.

Securities trading day (day of the week effect) is one of the deviations of form efficient market, which should mean daily return obtained is different on a particular trading day. This phenomenon showed higher returns or lower at a certain period (Alteza, 2007). Several studies have shown differences in the average daily return. Most of these studies show that the average return on Monday tends to be lower due to the high trading activity on the first day of each week. The decline in return on Monday is the result of the accumulation of information that occurred over the weekend when the stock market closes. Such a return pattern was first disclosed by the NII Cross (1973) who observed the return of S & P Index between the years 1953-1970. The results are then amplified by Gibbons and Hess (1981) using data from the 30 most active stocks in the Dow Jones with results showing negative returns on Monday.

Research on the Calendar anomalies does Felita (2014) in particular the phenomenon of day of the week effects and month of the year effect on capital markets of Southeast Asia (Indonesia, Malaysia, Singapore, Thailand, Philippines and Vietnam). Based on hypothesis testing using one way ANOVA test, the results obtained is the presence of the phenomenon of day of the week effect that occurs in the Indonesia Stock Exchange and the Singapore Strait Times. This indicates theory Fama (1970) regarding the efficient market hypothesis does not apply to both stock markets because capital markets in Indonesia and

Singapore are still not efficient. Day of the week effects in both countries emerged as most investor's active strategy in the short term so that trade between days is so liquid that has a significant difference between days. The results showed the phenomenon month of the year effect only occurs in the Kuala Lumpur Stock Exchange and Vietnam Stock Market. Month of the year effect in both countries arises because many investors do not invest for the medium-term strategy so few investors can exploit the average monthly returns. Felita researches results (2014) indicate a day of the week effect in the Indonesia Stock Exchange indicate that there are significant differences in the average daily returns. This is in line with previous research conducted by Lari et al. (2013), and Iramani and Mahdi (2006). According Lutfiatji and Djazuli (2008) and Iramani and Mahdi (2006), differences in the average return in a week due to profit taking are made by investors. Return lowest average occurred on Monday as many investors who tend to examine a variety of relevant information and trying to determine the strategy in the transaction. Many investors defer to make purchases of shares because of the psychological side, the investor does not like Mondays which is the beginning of the working day. It affects the mood of investors in buying or selling stocks. While the highest average return occurred on Tuesday and this is in line with research Lutfiaji and Djazuli (2008), due to the investment strategy set by investors. The investment strategy used is to buy stocks that have been analyzed earlier in the day so that on Tuesday investors began trading activity to obtain a positive return.

### **C. Metode**

This study is a descriptive study to discuss the daily trading patterns in Mexico, Indonesia and Turkey. The study uses daily data with observations made during the period from 2009 to early February 2014. Daily stock returns obtained using the formula  $\ln p_t / p_{t-1}$ , where  $p_t$  the stock price index period  $t$ , whereas  $p_{t-1}$  the stock price index period  $t-1$ .

This study uses Kruskal Wallis method, because it does not fulfill the assumption of One-Way ANOVA (Random Sampling and homogeneity). Kruskal Wallis calculated using the equation:

$$K = \frac{12}{N(N+1)} \sum_{i=1}^g n_i \left( \bar{r}_i - \frac{N+1}{2} \right)^2$$

$$= \frac{12}{N(N+1)} \sum_{i=1}^g n_i \bar{r}_i^2 - 3(N+1).$$

Dimana:

$k$  is the number of samples;

$n_j$  is the number of observations in  $j^{\text{th}}$  sample;

$N = \sum n_j$  is the total number of observations;

$R$  is the sum of ranks in the sample when  $N$  values are ranked together.

#### D. Analysis and Discussion

By using daily data for the period 2009 to February 2014, the result of descriptive statistics as shown in Table 1.

**Table 1**  
**Descriptive Statistics**

	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Mean</b>					
Mexico	.000548	-.000401	.001111	.000406	.000895
Indonesia	-.001088	.000982	.002878	.000679	.000924
Turki	.001266	.000982	.002878	.000679	.000924
<b>Maximum</b>					
Mexico	.0257	.0336	.0407	.0243	.0382
Indonesia	.0497	.0463	.0336	.0277	.0297
Turki	.0690	.0510	.0522	.0437	.0366
<b>Minimum</b>					
Mexico	-.0270	-.0593	-.0388	-.0230	-.0257
Indonesia	-.0578	-.0371	-.0218	-.0241	-.0493
Turki	-.0527	-.0468	-.0554	-.0622	-.0568
<b>Standar Deviation</b>					
Mexico	.0094937	.0118773	.0107568	.0088326	.0096953
Indonesia	.0139863	.0121254	.0098098	.0094226	.0106327
Turki	.0156076	.0136231	.0156923	.0156212	.0140026
<b>Skewness</b>					
Mexico	.014	-.692	.141	-.042	.336
Indonesia	-.012	-.276	.251	.163	-.952
Turki	-.053	-.298	.026	-.341	-.340
<b>Number of Observation</b>					

Mexico	236	262	259	247	253
Indonesia	246	248	241	240	244
Turki	259	257	259	254	254

From Table 1 it can be seen on the stock exchange in Mexico earned the highest average return on Wednesday and the lowest average return on Tuesday. This indicates that on Tuesday is a good time to do the accumulation of purchase given on the day the stock was corrected. The correction turned out to be quickly done reversal on the next day, so on Wednesday obtained the highest average for a week. This encourages investors who use market timing strategies to make purchases on Tuesday and sell it on Wednesday. While during the observation period also obtained the highest return are the result on Wednesday and the lowest on Thursday.

For the Indonesian stock exchange, the lowest average return in one week on the Monday and the highest average return are on Wednesday. The lowest average return on Monday can be understood because Monday is the first day of trading after the market closed the weekend. This resulted in an accumulation of information that will soon adjust the stock price on Monday. The decline in return on Monday can be used to make purchases accumulation and release it on Wednesday which is the day with the highest average return

Different results occur on the stock exchange in Turkey, where the average is the lowest return on Thursday and on average the highest return on Wednesday. This indicates a good time to buy stocks is on Thursday, and then releases it next week on Wednesday to obtain the highest average return. Unlike the Indonesian stock exchange that can perform purchase transactions Monday and selling on Wednesday, while the average exchange Mexico the lowest return on Tuesday and obtained the highest average return on Wednesday, the time required to realize profits in exchange Turkey is approximately one week with the purchase at the time of the lowest average return on Thursday, and sell it at the moment Wednesday next week.

Furthermore hypothesis test to determine whether there is a significant difference in the third return for one week exchange trading using non-parametric statistics.

**Table 2.**  
**Kruskal Wallis Test**

	Mexico	Indonesia	Turki
Chi-square	1.285	18.490	3.962
df	4	4	4
Asymp. Sig.	.864	.001	.411

By using the Kruskal-Wallis test, the results showed that for the Stock exchanges of Mexico and Turkey do not have differences in daily returns during the period of observation. This is in contrast to Indonesia, which found significant results where there are differences in daily returns. For Indonesia, the results showed that the lowest average return occurred on Monday, while the average is highest return on Wednesday. Return lows on Monday, can be explained that on Monday the first day of trading after the market closed on weekends. This implies that information over two days, Saturday and Sunday, will be responded by the market on Monday. The decline that occurred on Monday can be used by investors who use the contrarian strategy to perform long positions on Monday and then sell it on Wednesday which is a trading day with the highest average return.

#### **E. Conclusion**

The results showed that the phenomenon does not occur the day of the week effect in the capital markets of Mexico and Turkey, but there is the phenomenon in the Indonesian capital market. These results indicate that investors in Indonesia can earn abnormal returns by purchasing transactions on Monday and make sales on Wednesday. A relatively limited number of investors and in the dominance of foreign investors, making this phenomenon occurred in Indonesia. While the phenomenon of day of the week effect does not occur in Mexico and Turkey are relatively capital markets have a larger number of investors, and easier access to investors from the US to Mexico and the capital market access to the European Union the Turkish capital markets.



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